

UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION

MOBILE TELECOMMUNICATIONS  
TECHNOLOGIES, LLC,

Plaintiff,

v.

BROCADE COMMUNICATIONS  
SYSTEMS, INC.

Defendant.

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C.A. No. 2:16-cv-0013

JURY TRIAL REQUESTED

**PLAINTIFF’S COMPLAINT FOR PATENT INFRINGEMENT**

Plaintiff Mobile Telecommunications Technologies, LLC (“MTel”), by and through its undersigned counsel, files this complaint against Defendant Brocade Communications Systems, Inc. (“Brocade” or “Defendant”) for infringement of U.S. Patent Nos. 5,590,403 (the “’403 Patent”), 5,659,891 (the “’891 Patent”), and 5,915,210 (the “’210 Patent”), (collectively, the “Asserted Patents” or the “Patents-in-Suit”) in accordance with 35 U.S.C. § 271 and alleges as follows:

**PARTIES**

1. Plaintiff MTel is a Delaware limited liability company having a principal place of business at 1720 Lakepointe Drive, Suite 100, Lewisville, Texas 75057.

2. MTel is a wholly owned subsidiary of United Wireless Holdings Inc. (“United Wireless”). In 2008, United Wireless, through another of its wholly owned subsidiaries, Velocita Wireless LLC, purchased the SkyTel wireless network, including assets related to SkyTel’s more than twenty-year history as a wireless data company. Velocita Wireless LLC, continued to operate the SkyTel wireless data network after the acquisition. As a result of that transaction, United Wireless gained ownership and control over the intellectual property

portfolio, including patents, that several SkyTel-related entities, including Mobile Telecommunication Technologies Corp. (“MTel Corp.”), Destineer Corp., and SkyTel Communications, developed over the years. United Wireless subsequently assigned certain patent assets, including the Patents-in-Suit, together with all rights of recovery related to those patent assets, to its wholly owned subsidiary, MTel, which is the plaintiff here.

3. In a widely publicized November, 2014 jury trial in this District, MTel was awarded favorable infringement and validity verdicts against Apple, Inc. on the ’403, ’210, and ’891 Patents.

4. MTel alleges, upon information and belief, that Brocade is a Delaware corporation with offices in Birmingham, AL., Irvine, CA., San Jose, CA., Broomfield, CO., Greenwood Village, CO., West Hartford, CT., Alpharetta, GA., Schaumburg, IL., Overland Park, KS., Annapolis Junction, MD., Concord, MA., Novi, MI., Plymouth, MN., Henderson, NV., New York, NY., Durham, NC., Columbus, OH., Malvern, PA., Austin, TX., Frisco, TX., The Woodlands, TX., Herndon, VA., and Brookfield, WI.

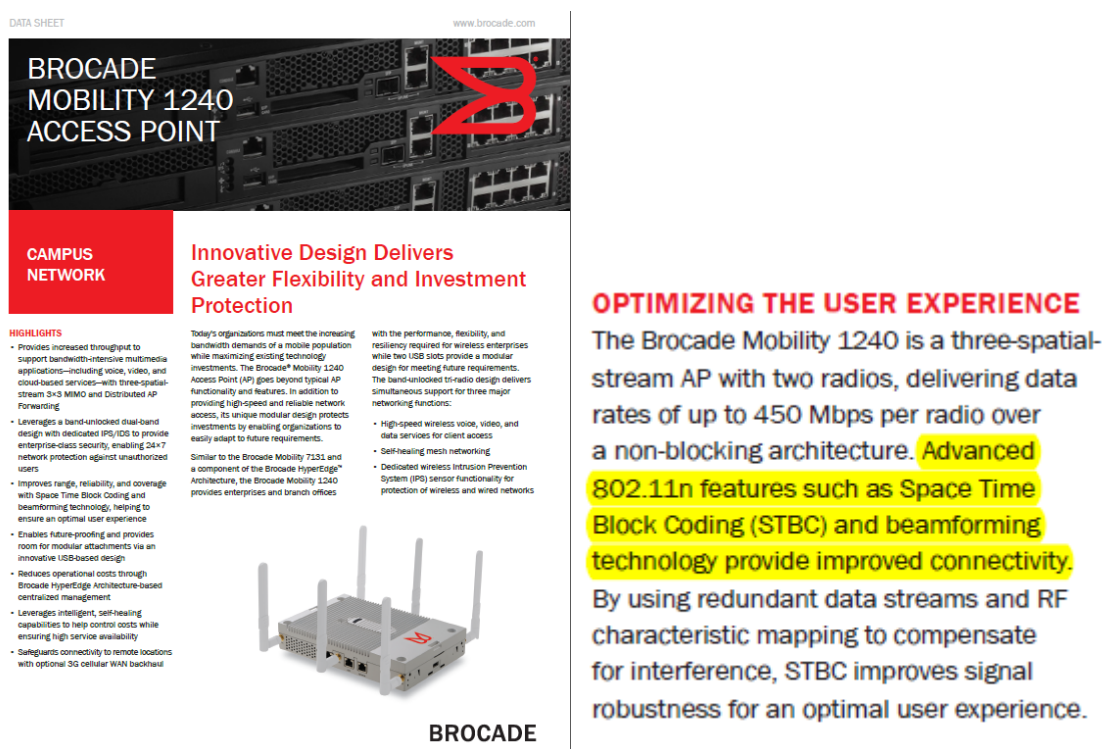
5. Upon information and belief, MTel alleges that Brocade made, used, sold, and offered to sell, infringing wireless equipment and services, during the terms of the ’403 Patent, the ’210 Patent, and the ’891 Patent (the “Relevant Period,”) within the United States, including within this District.

6. Brocade is a leader in high-performance networking technology, including wireless local networks (LANs).

7. MTel alleges that Brocade used wireless access points, WLAN controllers, and gateways that supported IEEE 802.11 a, g, n or ac standards (“Wi-Fi Equipment”) to deploy and manage service provider and enterprise Wi-Fi networks during the Relevant Period.

8. Brocade's Wi-Fi Equipment included the Brocade Mobility Series WLAN Access Points, including the Brocade Mobility 650 Access Point, Brocade Mobility 6511 Wallplate Access Point, Brocade Mobility 7131 Access Point, Brocade Mobility 7131-GR Access Point, and Brocade Mobility 1240 Access Points, and Brocade Mobility Series WLAN Controllers, including the Brocade Mobility RFS4000, Brocade Mobility RFS6000, Brocade Mobility RFS7000, and Brocade Mobility RFS7000-GR, and associated software.

9. Brocade's Wi-Fi Equipment supported Space Time Blocking Code (STBC).



**BROCADE MOBILITY 1240 ACCESS POINT**

**CAMPUS NETWORK**

**Innovative Design Delivers Greater Flexibility and Investment Protection**

**HIGHLIGHTS**

- Provides increased throughput to support bandwidth-intensive multimedia applications—including voice, video, and cloud-based services—with three-spatial-stream 3x3 MIMO and Distributed AP Forwarding.
- Leverages a band-unlocked dual-band design with dedicated IPS/IDS to provide enterprise-class security, enabling 24x7 network protection against unauthorized users.
- Improves range, reliability, and coverage with Space Time Block Coding and beamforming technology, helping to ensure an optimal user experience.
- Enables future-proofing and provides room for modular attachments via an innovative USB-based design.
- Reduces operational costs through Brocade HyperEdge Architecture-based centralized management.
- Leverages intelligent, self-healing capabilities to help control costs while ensuring high service availability.
- Safeguards connectivity to remote locations with optional 3G cellular WAN backup.

Today's organizations must meet the increasing bandwidth demands of a mobile population while maximizing existing technology investments. The Brocade® Mobility 1240 Access Point (AP) goes beyond typical AP functionality and features. In addition to providing high-speed and reliable network access, its unique modular design protects investments by enabling organizations to easily adapt to future requirements.

Similar to the Brocade Mobility 7131, and a component of the Brocade HyperEdge® Architecture, the Brocade Mobility 1240 provides enterprises and branch offices with the performance, flexibility, and resiliency required for wireless enterprises while two USB slots provide a modular design for meeting future requirements. The band-unlocked tri-radio design delivers simultaneous support for three major networking functions:

- High-speed wireless voice, video, and data services for client access
- Self-healing mesh networking
- Dedicated wireless Intrusion Prevention System (IPS) sensor functionality for protection of wireless and wired networks

**OPTIMIZING THE USER EXPERIENCE**

The Brocade Mobility 1240 is a three-spatial-stream AP with two radios, delivering data rates of up to 450 Mbps per radio over a non-blocking architecture. Advanced 802.11n features such as Space Time Block Coding (STBC) and beamforming technology provide improved connectivity. By using redundant data streams and RF characteristic mapping to compensate for interference, STBC improves signal robustness for an optimal user experience.

**BROCADE**

<http://content.etilize.com/Manufacturer-Brochure/1024836739.pdf>

10. Brocade sourced at least some components of its wireless product lines from Motorola Solutions, Inc. and Meru Networks, Inc., which is now part of Fortinet, Inc. See correspondence from Brocade's Sr. Director of IP, James E. Parsons, attached as Exhibit F.

11. During the Relevant Period, Brocade professional services teams designed, engineered, deployed, supported, and operated Wi-Fi networks in apartment buildings, hotels, sports venues, and public areas.

12. Brocade's deployment services teams installed, configured, tested, or commissioned deployments that include Wi-Fi Equipment.

13. Brocade engineers developed and executed test cases to thoroughly validate Wi-Fi Equipment.

14. Brocade controlled the features and functionality of Wi-Fi Equipment by, for instance, causing software (*e.g.* updates or firmware) to be downloaded to such equipment and otherwise making configuration changes thereto.

15. MTel alleges that, during the Relevant Period, Brocade made, used, sold, and offered to sell, wireless equipment and services, including Wi-Fi Equipment, which directly infringed the claims of the '403 Patent, the '210 Patent, and the '891 Patent, within the United States, including within this District.

16. MTel alleges that Brocade made, used, sold, and offered to sell, systems and products that embodied the claimed methods of the Patents-in-Suit because, for instance, such systems and products employed certain subcarrier frequency structures in the IEEE 802.11 a, g, n, or ac orthogonal frequency-division multiplexing ("OFDM") scheme, or techniques consistent with the MIMO aspects of IEEE 802.11 n or ac standards (*e.g.*, as described in "Wi-Fi CERTIFIED n: Longer-Range, Faster-Throughput, Multimedia-Grade Wi-Fi Networks" at 5-6, available at <http://www.wi-fi.org/file/wi-fi-certified-n-longer-range-faster-throughput-multimedia-grade-wi-fi-networks-2009>):

A MIMO system has some number of transmitters (N) and receivers (M) ... Signals from each of the N transmitters can reach each of the M receivers via a different path in the channel. A MIMO device with multiple antennas is capable of sending multiple spatial streams – spatially distinct data streams within the same channel. A MIMO device with multiple antennas is capable of receiving multiple spatial streams. Multipath helps decorrelate the received signals enabling transmission of multiple data streams through the same MIMO channel – a technique called spatial multiplexing. MIMO can multiply data rate through a technique called spatial multiplexing - dividing a data stream into several branches and sending it as multiple parallel data streams simultaneously in the same channel.

A copy of this document is attached as Exhibit D.

17. MIMO can also be used to improve the robustness and range of 802.11n and ac communications through a technique called spatial diversity. When the same data stream is transmitted across multiple spatial streams error rate can be reduced. An additional technique improving range and reliability called Space Time Block Coding (STBC) is also incorporated into Wi-Fi CERTIFIED n and ac.

18. On information and belief, Brocade has voluntarily and purposely placed these and other products and services into the stream of commerce with the expectation that they would be offered for sale and sold in Texas and in this judicial district.

### **JURISDICTION AND VENUE**

19. This is an action for patent infringement under the patent laws of the United States of America, 35 U.S.C. § 1 et seq. This Court has subject matter jurisdiction over the

matters pleaded in this complaint under 28 U.S.C. §§ 1331 and 1338(a). Venue is proper under 28 U.S.C. §§ 1391 and 1400(b).

20. This Court has personal jurisdiction over the Defendants under the law of the State of Texas, including the Texas long-arm statute, Tex. Civ. Prac. & Rem. Code § 17.042, due at least to its substantial business in this forum, including: (i) at least a portion of the infringements alleged herein; (ii) conducting business within this District from the Brocade office at 2801 Network Blvd, Frisco, TX. 75034; and (iii) regularly doing or soliciting business, engaging in other persistent courses of conduct, and/or deriving substantial revenue from goods and services provided to individuals in Texas and in this judicial district.

### **FIRST CLAIM FOR RELIEF**

(Infringement of Claims 1, 10, 11 of United States Patent No. 5,590,403)

21. MTel incorporates by reference the preceding paragraphs of this Complaint as if set forth here in full.

22. The United States Patent and Trademark Office (“USPTO”) duly and lawfully issued the ’403 Patent, entitled “Method and System for Efficiently Providing Two Way Communication between a Central Network and Mobile Unit,” on December 31, 1996. MTel is the assignee of all right, title, and interest in and to the ’403 Patent and possesses the exclusive right of recovery, including the exclusive right to recover for past infringement. Each and every claim of the ’403 Patent is valid and enforceable and each enjoys a statutory presumption of validity separate, apart, and in addition to the statutory presumption of validity enjoyed by every other of its claims. 35 U.S.C. § 282. A true and correct copy of the ’403 Patent is attached as Exhibit A.

23. MTel alleges that, during the Relevant Period, Brocade directly infringed one or more claims of the '403 Patent by making, using, selling, and offering to sell Wi-Fi Equipment and associated services.

24. MTel alleges that Brocade's use of Wi-Fi Equipment infringed one or more claims of the '403 Patent literally and/or under the doctrine of equivalents, by, among other things, using MIMO functionality and dynamically reassigning transmitters due to changing conditions within the network.

25. Brocade implemented through its Wi-Fi networks, services, and equipment the IEEE 802.11 standard versions n and ac, which employed MIMO technology in several variations to significantly increase data rates and coverage relative to the previous versions of the standard. The different MIMO configurations implemented by Brocade provide facilities to dynamically optimize system transmission for a desired level of robustness and diversity or capacity gain, depending on signal-to-noise ratio (SNR) and channel conditions.

26. The main relevant MIMO techniques that Brocade used include (i) Spatial Multiplexing (SM); (ii) Space Time Block Coding (STBC); (iii) Spatial Expansion (SE); (iv) Beam Forming (BF); and (v) HT Duplicate mode (MCS 32).

27. MTel alleges that Brocade's use, operation, and maintenance of Wi-Fi Equipment directly infringed the '403 Patent, at least because such equipment employed MIMO techniques described above.

28. MTel alleges that Brocade's use and sale of Wi-Fi Equipment, such as the Brocade Mobility Series WLAN Access Points, directly infringed the '403 Patent at least because such equipment embodies the asserted method claims of the '403 Patent. This list is non-limiting and will be supplemented after appropriate discovery.

29. MTel alleges that Brocade directly infringed the '403 Patent when its service professionals used, installed, tested, deployed, or validated Wi-Fi Equipment.

30. MTel alleges that Brocade directly infringed the '403 Patent when, for example, its technicians tested the throughput that such Wi-Fi Equipment achieved during testing in various wireless channel conditions that trigger adaptations in transmission modes.

31. MTel alleges that Brocade directly infringed the '403 Patent when it used Wi-Fi Equipment, such as its Brocade Mobility Series WLAN Access Points and Controllers, to dynamically reassign transmitters due to changing conditions within the wireless network to enable a Wi-Fi connected device to seamlessly roam between zones of the Wi-Fi network.

32. As a result of Brocade's unlawful infringement of the '403 Patent, MTel has suffered damage. MTel is entitled to recover from Brocade damages adequate to compensate for such infringement.

#### Willful Infringement of the '403 Patent

33. MTel alleges, upon information and belief, that Brocade's infringement was deliberate and willful because Brocade knew or should have known of the risk of infringement. MTel alleges, upon information and belief, that Brocade was aware of MTel's pioneering '403 Patent because, on January 17, 2013 Brocade acknowledged in writing that it had received a Notice Letter dated December 31, 2012 officially notifying Brocade of the '403 Patent and MTel's claims. MTel's Notice Letter is attached as Exhibit E. Brocade's acknowledgement is attached as Exhibit F.

34. All infringing activity since at least that time demonstrated a deliberate and conscious decision to infringe the '403 Patent or, at the very least, a reckless disregard of MTel's patent rights. Additionally, Brocade did not make changes to its products or provide end users



with instructions regarding how to avoid infringement, despite Brocade's actual knowledge of the '403 Patent. Brocade's continuing to use infringing processes and products following the Notice Letter constituted willful infringement, which entitles MTel to up to treble damages, as well as attorneys' fees and costs incurred in this action, along with prejudgment interest. 35 U.S.C. §§ 284, 285.

### **SECOND CLAIM FOR RELIEF**

**(Infringement of Claims 1, 2, 3, 4 and 5 of United States Patent No. 5,659,891)**

35. MTel incorporates by reference the preceding paragraphs of this Complaint as if set forth here in full.

36. The USPTO duly and lawfully issued the '891 Patent, entitled "Multicarrier Techniques in Bandlimited Channels," on August 19, 1997. MTel is the assignee of all right, title, and interest in and to the '891 Patent and possesses the exclusive right of recovery, including the exclusive right to recover for past, present, and future infringement. Each and every claim of the '891 Patent is valid and enforceable and each enjoys a statutory presumption of validity separate, apart, and in addition to the statutory presumption of validity enjoyed by every other of its claims. 35 U.S.C. § 282. A true and correct copy of the '891 Patent is attached as Exhibit B.

37. MTel alleges that, during the Relevant Period, Brocade directly infringed one or more claims of the '891 Patent by making, using, selling, and offering to sell Wi-Fi Equipment, and associated services.

38. MTel alleges, upon information and belief, that Brocade's Wi-Fi networks and equipment directly infringed one or more claims of the '891 Patent literally and/or under the doctrine of equivalents, by among other things, using certain subcarrier frequency structures of the IEEE 802.11 orthogonal frequency-division multiplexing ("OFDM") scheme.

39. OFDM systems contain individual subcarriers that are orthogonally spaced apart in the frequency domain such that they do not interfere with each other as shown in the figure below. To illustrate this concept, the power spectrum for four modulated subcarriers is shown in the below figure, with solid, dotted, dash-dotted, and dashed lines, respectively. It can be seen that, at the center frequency of each subcarrier, the power spectra of the other subcarriers have nulls in the spectrum and thus do not produce interference.

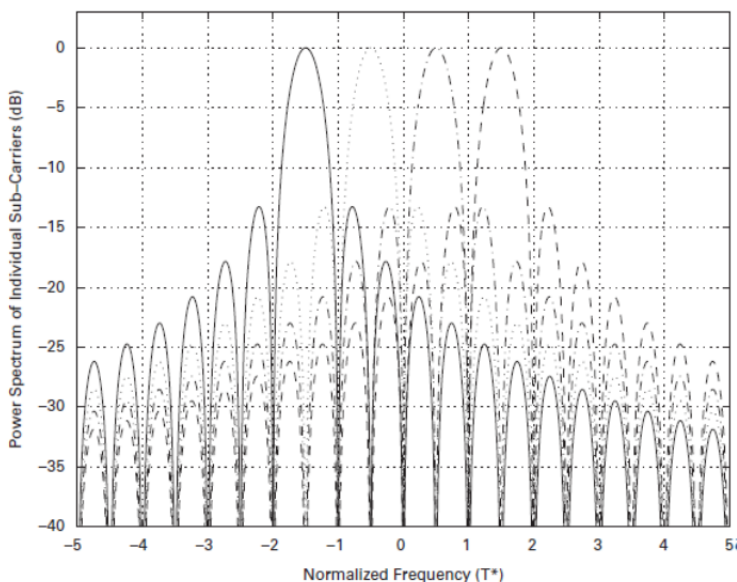


Figure 2.2 Power spectrum of the individual subcarriers of the OFDM waveform.

40. MTel alleges, for example, that Brocade directly infringed claims of the '891 Patent in regards to the 802.11 systems that its Wi-Fi Equipment implemented. For instance, when such equipment was using the 20 MHz channel bandwidth option, 64 subcarriers could fit into the available bandwidth of 20 MHz because  $20 \text{ MHz} = 64 \times 312.5 \text{ kHz}$ . In the 802.11 systems of interest, the orthogonal subcarrier spacing ( $\Delta F$ ) is 312.5 kHz. However, because of spectral band limitations, several subcarriers on each side of the band are not employed to minimize interference to adjacent channels and meet the transmit spectrum mask imposed by regulatory requirements. Since in the 20 MHz channel there are 10 MHz on both sides of the center frequency, the frequency separation from the outermost used subcarrier to the band edge

is 1,250 kHz which corresponds to  $4 \times \Delta F$ , i.e. four times the inter-subcarrier frequency separation. Thus, by avoiding transmission on the outermost subcarriers, a guard-band is created that allows meeting the frequency mask restriction and enables the power spectral density to drop from 0 dBr at 9 MHz from the center frequency to -20 dBr at 11 MHz from the center frequency. Beyond 11 MHz, we have active subcarriers on the adjacent 20 MHz channel and this guard band arrangement provides reduced levels into adjacent channels. When operating using a 20 MHz channel for example, each subcarrier is spaced 0.3125 MHz apart. Using 52 subcarriers at a frequency spacing of 0.3125 MHz occupies 16.25 MHz for data transmission. The remaining 3.75 MHz of the 20 MHz channel is used as a guard on the upper and lower edge of the band—1.875 MHz at each edge. Therefore, the claimed frequency difference between the center frequency of the outer most subcarrier and the band edge (here, 1.875 MHz) is more than half the frequency difference between the center frequencies of each adjacent subcarrier (here,  $0.3125 \text{ MHz} / 2$  or 0.15625 MHz).

41. MTel alleges that Brocade's use, operation, and maintenance of Wi-Fi Equipment, such as the Brocade Mobility Series WLAN Access Points, directly infringed the '891 Patent, at least because such equipment operated according to the IEEE 802.11 OFDM scheme of channelization structure.

42. MTel alleges that Brocade directly infringed the '891 Patent when its service professionals installed, tested, or validated Wi-Fi Equipment or conducted studies of the physical and spectral dynamics leading up to a wireless network deployment.

43. MTel alleges that Brocade directly infringed the '891 Patent when, for example, its professionals tested the maximum throughput that such Wi-Fi Equipment achieved.

44. As a result of Brocade's unlawful infringement of the '891 Patent, MTel has suffered damage. MTel is entitled to recover damages from Brocade adequate to compensate for such infringement.

**THIRD CLAIM FOR RELIEF**

(Infringement of Claims 1, 7, 8, 10, 15, 16, 17, and 19 of United States Patent No. 5,915,210)

45. MTel incorporates by reference the preceding paragraphs of this Complaint as if set forth here in full.

46. The USPTO duly and lawfully issued the '210 Patent entitled, "Method and System for Providing Multicarrier Simulcast Transmission," on June 22, 1999. MTel is the assignee of all right, title, and interest in and to the '210 Patent and possesses the exclusive right of recovery, including the exclusive right to recover for past, present, and future infringement. Each and every claim of the '210 Patent is valid and enforceable and each enjoys a statutory presumption of validity separate, apart, and in addition to the statutory presumption of validity enjoyed by every other of its claims. 35 U.S.C. § 282. A true and correct copy of the '210 Patent is attached as Exhibit C.

47. MTel alleges that, during the Relevant Period, Brocade directly infringed one or more claims of the '210 Patent by making, using, selling, and offering to sell Wi-Fi Equipment and associated services.

48. MTel alleges that Brocade's use and operation of Wi-Fi Equipment infringed one or more claims of the '210 Patent literally and/or under the doctrine of equivalents by, among other things, employing MIMO functionality and certain multi-carrier frequency structures, such as OFDM, as described above.

49. MTel alleges that Brocade's use and sale of Wi-Fi Equipment, such as the Brocade Mobility Series WLAN Access Points, directly infringed the '210 Patent at least

because such equipment embodies the asserted method claims of the '210 Patent. This list is non-limiting and will be supplemented after appropriate discovery.

50. MTel alleges that Brocade directly infringed the '210 Patent at least because Brocade made, sold, and offered to sell Wi-Fi Equipment, which implement the claimed system of the '210 Patent.

51. MTel alleges that Brocade directly infringed the '210 Patent when its service professionals used, installed, tested, deployed, or validated Wi-Fi Equipment.

52. MTel alleges that Brocade directly infringed the '210 Patent when, for example, its technicians tested the throughput that such Wi-Fi Equipment achieved during testing in various wireless channel conditions that trigger adaptations in transmission modes.

53. As a result of Brocade's unlawful infringement of the '210 Patent, MTel has suffered damage. MTel is entitled to recover damages from Brocade adequate to compensate for such infringement.

#### **PRAYER FOR RELIEF**

WHEREFORE, Plaintiff MTel prays for entry of judgment against Brocade as follows:

- A. That Brocade directly infringed each of the Asserted Patents under 35 U.S.C. § 271(a);
- B. That the damages awarded to MTel with respect to the asserted '403 Patent be increased up to three times, in view of the relevant period of Brocade's willful infringement, in accordance with 35 U.S.C. § 284;
- C. That Brocade provide to MTel an accounting of all gains, profits, savings, and advantages derived by Brocade's direct infringement of the Asserted Patents, and that MTel be awarded damages adequate to compensate for the wrongful infringement by Brocade, in accordance with 35 U.S.C. § 284;

- D. That this case be declared an exceptional one in favor of MTel under 35 U.S.C. § 285, and that MTel be awarded its reasonable attorneys' fees and all other costs and expenses incurred in connection with this civil action in accordance with 35 U.S.C. § 285 and Rule 54(d) of the Federal Rules of Civil Procedure;
- E. That MTel receive all other or further relief as this Court may deem just or proper.

**DEMAND FOR JURY TRIAL**

In accordance with Federal Rule of Civil Procedure 38(b), MTel hereby demands a trial by jury on all issues triable to a jury.

Dated: January 4, 2016

Respectfully Submitted,

/s/ Daniel Scardino

Daniel Scardino

Texas State Bar No. 24033165

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